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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,747	06/29/2001	Toshihiro Tai	FURUYA-CASE-	8626
7590 01/21/2004				
Flynn Thiel Boutell & Tanis 2026 Rambling Road Kalamazoo, MI 49008-1699				
EXAMINER				
WYROZEBSKI LEE, KATARZYNA I				
ART UNIT		PAPER NUMBER		
1714				

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/869,747

Applicant(s)

TAI, TOSHIHIRO

ed

Examiner

Katarzyna Wyrozebski Lee

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on interview 12/16/03.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15, 19, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15, 19, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 1203.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Note: The priority documents of the present invention are in Japanese. Therefore the prior art that has filing date after the priority date but is in English will be applied and it can be overcome by submitting certified translation of the priority documents.

In view of the interview conducted on December 16/2003 the examiner agreed to prosecute the article claims, as most of the limitations of the claims are oriented towards the composition. The composition claims and method claims have been cancelled.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 10-15, 19, 21, 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to the claims 10-15, 19, 21 and 22 each of them contain limitation of "metalized molded product". It is not clear what the applicant exactly mean by term metalized. It is not clear if metalized means metal plated, having metal embedded therein, if it is embedded is it partially or completely embedded and so on, as each one of the products is different. For

Art Unit: 1714

more prompt prosecution of the application the examiner will treat the claim broadly where molding composition has metallic component either plated or embedded therein.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 10-12, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by TAMURA (US 6,299,942).

The composition of TAMURA comprises metal plated molded article, wherein the molding composition comprises following (col. 2, lines 48-53):

20-50wt % of polyarylene sulfide thermoplastic polymer

5-50 wt % of zinc oxide whisker

0-75 wt % of inorganic filler and preferably

20-40 wt % of fiber.

Art Unit: 1714

The inorganic filler can be in form of a whisker or fiber or particulate (col. 5, lines 36-54), wherein whisker is most preferred. The whiskers listed in col. 5 include potassium titanate whiskers, carbon whiskers, borate whiskers, alumina whiskers and graphite whiskers.

The fiber in the composition of TAMURA includes carbon fiber, glass fiber, aluminum fiber and iron fiber (col. 6, lines 51-58).

In addition to the composition above the prior art of TAMURA discloses use of other polymeric components such as polyamides, styrene based polymers (col. 7, lines 14-18).

Compound such as metal oxide in the examples of TAMURA is also frequently utilized as flame retarding agent, which is its property. This is further confirmed in col. 11, lines 58-59 of the prior art of TAMURA.

In the light of the above disclosure, the prior art of TAMURA anticipates requirements of claims rejected above.

5. Claims 10-11, 14, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by KOICHI (JP 200-129148) (translation provided).

The prior art of KOICHI discloses molding composition electromagnetic wave shielding, wherein such shielding is metalized as it contains metal layer. In fact the prior art of KOICHI discloses adhesion problems between the polymer and metal layers [0002].

The composition comprises styrenic polymer, 5-30 wt % fiber, 3-20 wt % zinc oxide whisker and titanium dioxide.

The styrenic polymer in the prior art of KOICHI is ABS resin or combination of ABS with polyamide [0006, 0015] and fibers include carbon fibers or glass fibers [0007].

Art Unit: 1714

In the light of the above disclosure the prior art of KOICHI anticipates requirements of claims rejected above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 1714

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 10-11, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over ICHIKAWA (US 5,942,168).

The prior art of ICHIKAWA discloses composition for a metal plated die, which core is made of thermoplastic composition.

The composition of ICHIKAWA comprises 40-70 wt % of thermoplastic polymer. The polymer is selected from polyesters, polyamides (col. 4, lines 35-40).

Second component of the composition includes 20-40 wt % inorganic fiber. The fiber is selected from carbon fibers, glass fibers and the like as well as whiskers such as potassium titanate whiskers, wherein mixtures of the fibrous components can be utilized. Third component of the composition is 10-30 wt % of the inorganic filler.

Although the prior art of ICHIKAWA does not disclose use of fiber and whisker in the examples in amount of, for example, 30:10 respectively such is enabled by the prior art of ICHIKAWA.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art to combine whisker and fiber and thereby obtain the claimed invention. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Linder* 457 F,2d 506,509, 173 USPQ 356, 359 (CCPA 1972).

Art Unit: 1714

10. Claims 10-14, 19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over UMETSU (US 6,075,114).

The prior art of UMETSU discloses molding composition comprising polyesteramide and/or polyester (Abstract).

The composition is utilized in many articles, such as those in col. 13, wherein several of them are either plated or containing metal and which articles are either utilized in electronic or automotive industry (col. 13).

The composition of UMETSU comprises flame retardant, preferably red phosphorus (col. 7, lines 20-24). In addition to red phosphorus flame retarding compounds such as hydrated metal oxides can also be utilized (col. 8, lines 59-61).

The composition of the prior art of UMETSU also contains fillers in amount of 10-200 pbw. The fillers include fibers and whiskers (col. 11, lines 14-22). Fibers include carbon fibers and glass fibers while whiskers include potassium titanate whiskers and aluminum borate whiskers. In the examples the prior art of UMETSU utilizes fillers in the amount of 45-50 wt %, small amounts of flame retardants and balance of thermoplastic polymer.

It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Linder* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Since the purpose of the filler in the composition of UMETSU is the same for all compounds listed, i.e., being a filler, it would have been obvious to combine both whiskers and fibers and thereby obtain the claimed invention.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize whiskers and fibers together with the

Art Unit: 1714

thermoplastic polymer as such modification would not impair the flame retardant properties of the composition of UMETSU.

11. Claims 10-12, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over HIRONAKA (US 6,221,947) in view of KOSAKA (US 5,134,190).

The prior art of HIRONAKA discloses composition comprising thermoplastic polymer, aluminum borate whiskers and fiber reinforcement (Examples 1-6, col. 6).

The examples teach use of glass fibers, however specification of HIRONAKA further teaches use of carbon fibers as functional equivalent (col. 5, lines 1-7).

The specification discloses that the amount of whiskers is in a range of 10-100 pbw (col. 4, lines 15-20) and the examples disclose 42-52 pbw of whiskers (TABLE 1, col. 7). Fiber reinforcing agents are utilized in 42-45 pbw in the examples.

Polymers in the composition of HIRONAKA include polyolefins, polyamides, ABS, polystyrenes, polyphenylene sulfide, polyphenylene ethers and the like (col. 2, lines 28-45). Polyamides are one of the preferred polymers due to its adaptability to electronic and electronic parts having heat resistance and heat aging resistance.

The composition of HIRONAKA is flame retarded and it is utilized in electronic parts to reduce weight, thickness and improve performance.

The difference between the present invention and the disclosure of the prior art of HIRONAKA is use of such composition in metal plated articles.

With respect to the above difference the prior art of KOSAKA discloses composition comprising fibers and whisker fillers utilized in the molding article that is suitable for metal plating.

The prior art of KOSAKA further teaches that other polymeric materials suitable for composition utilized in metal plating include polyesters, polyamides, PPE, PPS, which are further the same polymers listed in the composition of HIRONAKA (col. 1, lines 20-23).

The composition of KOSAKA, once metal plated it is utilized in field of electronic parts such as printed circuit boards.

Composition of HIRONAKA just as the composition of KOSAKA have excellent properties with fiber reinforcement and components such as fillers. These two compositions are utilized in electronic parts, wherein some electronic parts require metal plating.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the composition of HIRONAKA in the article of KOSAKA and thereby obtain the claimed invention.

12. Claims 13, 19, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over HIRONAKA (US 6,221,947) in view of KOSAKA (US 5,134,190) as applied to claims 10-12, 14, 15 above, and further in view of UMETSU (US 6,075,114).

The discussion of the disclosure of the prior art of HIRONAKA and KOSAKA from paragraph 11 above is incorporated here by reference.

Art Unit: 1714

The difference between the present invention and the disclosure of the prior art of HIRONAKA and KOSAKA is use of red phosphorus and hydrated metal oxide as flame retardants in electronic parts.

With respect to the above difference, the prior art of UMETSU discloses composition comprising thermoplastic polymer, fibers and whiskers that contains red phosphorus and hydrated metal oxide as flame retardants instead of halogenated flame retardants. The discussion of the prior art of UMETSU is also described in greater detail in paragraph 10 of this office action.

The prior art of UMETSU discloses that flame retardants such as antimony trioxide when the composition is fired produce a lot of smoke. Halogenated flame retardants also have drawbacks.

In order to avoid drawback of the halogenated flame retardants one of ordinary skill in the art can use flame retardants such as red phosphorus and/or hydrated metal oxide.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize red phosphorus and/or hydrated metal oxide as flame retardants in composition of HIRONAKA and thereby obtain the claimed invention. Utilizing red phosphorus and/or hydrated metal oxide would overcome drawbacks of the halogenated flame retardants and still provide flame retardant composition that can be utilized in plated electronic articles.

Art Unit: 1714

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Katarzyna Wyrozebski Lee
Primary Examiner
Art Unit 1714

December 30, 2003